as the tidal effect is felt."[37] The mangrove-nipa area between the Siaton and Canaway Rivers is the source of most of the nipa used to thatch houses in this vicinity. 137 [314]

Soils

Two parent materials have played major roles in the origin and development of present day Negros' soils. First, the volcanic parent materials from the central mountains and, second, the limestone materials derived from coral depositions during periods of Negros' submergence. There are three major soil groups in Negros, based on factors of relief and the nature of the parent materials.[38] 134.

The three major soil groups of Negros are (1) flat lowland soils; (2) rolling uplands soils (subdivided into those of sedimentary and igneous derivation); and (3) hill and mountain soils. The most important agricultural soil group is the flat lowland soils. These are soils of recent alluvial deposition which are usually found on the level or slightly undulating lands of the coastal plains--the plains of western Negros, San Carlos, Bais, and the many small plains of the eastern and western coasts. The flat lowland soils are the best agricultural soils in Negros, covering about one-fifth of the island, and are

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[37] Wernstedt, op. cit., p.47.

[38] The soils of Negros are inadequately studied. The two major studies are M. M. Alicante and others, op. cit., and Alfredo Barrera and others, "Soil Survey of Negros Oriental Province, Philippines." Manila, Bureau of Soil Conservation, 1950. Typescript.

134.

planted mainly with sugar cane or rice. The most extensive and productive of these lowland soils, the Silay series, is not found in Siaton municipality, although the Zamboanguita, Isabela, and San Manuel soil series are represented. (See Plate X.)[1]

About 12 per cent of Negros is covered with rolling upland soils of a sedimentary parentage, usually found in the piedmont areas away from the coast. Because of the steep slopes on which they are located, drainage is often excessive and erosion is severe. Igneous-derived upland soils cover almost 25 per cent of Negros. The soils in this latter group have strong lateritic characteristics and due to the pronounced external drainage, gullying and sheet erosion are widespread.

The least important, economically, but the most extensive of all the soil groups of Negros, are the hill and mountain soils which occupy about 30 per cent of the island. This soil group is found mainly in the central mountains. Most of these soils are covered by tropical rain forests which are the watersheds for Negros' major rivers and very little of them have been cultivated. Where scattered caingins exist on these soils severe erosion has resulted.

[311]

Lack of contour planting on slopes, the clearing of steep slopes and hillsides, and faulty soil and crop management are a few reasons for soil erosion in Negros. In some areas the erosion is quite serious. In

1 [See p. 64, Cat. 134--Analyst]

20: Hart E-5 (1951) 1954 OA1 Philippines
Central Bisayan OA14

Pg. 64

Plate X

134

Vallehermoso (Negros Oriental) floods which were uncommon in the past occur frequently during the rainy season. The inhabitants state the major cause of these local floods is the destruction of the protective waterahed by cainginș. In Siaton shifting agriculture on hillsides near the barrios, particularly between Barrios Giliga-on and Maloh, has caused severe erosion. Often the level fields at the base of the hills are damaged by large boulders and rubble which have tumbled down from the cainginș-scarred slopes. The Northeastern Hill Lands are the most severely eroded area. 134 ●

> Extreme erosion has resulted from cultivation of the extremely steep slopes, in some cases up to one hundred percent, the use of corn which is an erosion-promoting crop, the shallow nature of the soil, and the complete lack of any soil conservation program by the farmers.[39]

The flat lowland soils have escaped serious erosion due to the slower velocities of streams and the topography of the areas.

In Siaton municipality the Zamboanguita soil series is the most extensive soil group. (See Plate X.)[1] Only one soil type is defined under this series, the Zamboanguita clay loam, which has good external with slow internal drainage. The surface soils are black clay loam, slightly plastic when wet but friable when dry. A considerable amount of lowland rice is grown on this soil near Barrios Canaway and Inalad.

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[39] Wernstedt, op. cit., p.60.

1 [See p. 64, cat. 134 -: Analyst]

[p. 66 is missing-- Analyst]

134

The next largest soil type represented in Siaton is the Isabela series of which two small enclaves of Isabela clay are located near Barrios Caticugan and Giliga-on. Because of the soil's heavy texture, both external and internal drainage are poor; this gives the soil its bluish-black color. Isabela clay, the most important soil type in this series, is also found in Isabela, Binalbagan, Kabankalan, and San Carlos, Negros Occidental. "One drawback... [of this soil type] ... [312] is its poor drainage condition. Sugar cane fields are provided with drainage canals at regular intervals to facilitate the drawing out of excess water."[40]

In Negros Occidental, where this clay soil appears, corn is often planted after the rice harvest, which is the reverse of the practice in Caticugan. While sugar cane and lowland rice are the two important crops raised on this soil, corn and coconuts also are grown as minor crops. The soil survey report on Negros Oriental states: "This series [Isabela] as defined in Siaton area [including Barrio Caticugan] is dissected by the destructive Siaton River. It is therefore to be expected that this series is of alluvial formation arising from the deposition of secondary soil-building material brought down by the flow of the Siaton River during the rainy season."

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[40] Alicante and others, op. cit., pp.53-4.

134

The next most extensive soil type found in Siaton municipality is the San Manuel loam also present in the vicinities of Isabela and Sipalay, Negros Occidental.[41] This secondary soil type has been deposited along the river courses through alluvial action. The inadequate drainage of the San Manuel loam with a water table only three or four feet below the surface, favors rice cultivation. In Siaton the San Manuel soil area is one of the largest lowland rice producing areas.

The fourth major soil series in Siaton municipality is the Siaton series. The Siaton Sandy Loam type occupies the narrow coastal strip from Siaton poblacion to Sta. Catalina. The soil is a well drained loam with an internal drainage which permits water impounded in paddies to stand for some time before it percolates completely. The lower horizon of the subsoil is sandy clay to clay loam and the lack of stones on the surface aids in its care. Corn and coconuts are the major crops of this soil in Siaton, although some lowland rice is raised.

The enclave of Dauin clay west of Zamboanguita occupies a small, semi-circular valley devoted almost entirely to lowland rice. Many of the barriofolk in Sitio Mayabon specialize in making pottery. The bus to Siaton often stops here to load pottery for sale in Siaton poblacion. [438]

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[41] Ibid., p.46.

134
[243]

Rice agriculture and soils correlate in Barrio Caticugan. The Zamboanguita clay area of the barrio corresponds almost precisely with the rice paddies. An oven-dried chemical analysis of a sample of this clay is given in Table IV.

TABLE IV

pH Value	Total Nitrogen %	Available Constituents in Parts per Million[42]							
		NH_3	NO_3	P	K	Ca	Mg	Mn	Fe
5.90	0.39	2	2	45	47	5300	190	26	1

The Zamboanguita clay of Caticugan's paddies, is high in nitrogen, fairly well supplied with calcium, but low in available phosphorus and potassium, especially the latter.

The remainder of the soils of Caticugan are sandy loams with the exception of areas of Mandawa Loam in small localities of Caticugan and Naga.[43] Along the east bank of the Mantuyop River, parts of the west bank of the Siaton River, and south of the main path from Caticugan to Talo-ot, the loams are quite stony, which hinders

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[42]The chemical analysis was made through the cooperation of Ricardo T. Marfori, Acting Chief, Division of Soil Laboratories, Bureau of Soil Conservation, Manila, and Marcos M. Alicante, Director of Soil Conservation Bureau. The soil sample sent weighed almost four pounds and was composed of 20 separate surface samples taken from different parts of the locality.

[43]Since no profile was taken in the field this classification is tentative.

134

cultivation. This is due to the deposition action during the rainy season and the past courses of the Siaton River. A chemical analysis of the sandy loams of Naga and Talo-ot was made; the results are given in Table V.

TABLE V

Available Constituents in Parts per Million

	pH Value	Total Nitrogen (%)	NH_3	NO_3	P	K	Ca	Mg	Mn	Fe
Naga	6.2	0.1	10	5	98	126	4400	750	11	1
Talo-ot	(a)	0.04	25	10	149	133	2500	460	8	1

(a) No pH value for Talo-ot soil sample was determined due to the inoperative condition of the Bureau's pH meter when the sample was sent for analysis.

The pH value tolerance for rice is from 4.8 to 6.9 with optimum at 5.5 to 6.1 while for corn the tolerance is 4.8 to 8.5 with an optimum from 6.2 to 7.0. The desirable chemical constituents, identical for both crops, (p.p.m.)[44] for rice and corn are:

Nitrogen	12-25 (normal)	Calcium	2000-6000
Phosphorus	30-40	Magnesium	600-1700
Potassium	100-150	Manganese	8-30
		Iron	15-250

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[44] R. T. Marfori, "Interpretation of the Chemical Analysis." DSSC Form No. 4, Bureau of Soil Conservation, Manila, March 19, 1951. Mimeographed.

owing to firing difficulties. Most of my material on techniques of pottery was obtained from this cooperative Datag potter. 323 178

Most clay cooking pots now used in Caticugan are made in Dumaguete city. In this city there is a district, Daro, that specializes in the manufacture of cooking pots, clay stoves and large waterjars for drinking purpose. Some pots sold in Siaton poblacion are made in Mayabon, Zamboanguita, but are regarded as inferior to Daro's products. Mayabon is situated in a small enclave of Dauin clay that may explain the small pottery industry. (See Plate X, page 64.) A family came to Siaton from Daro in 1951 and started to make clay pots for sale in the poblacion; the business did not succeed and after several months they left. 323 369 438 [134]

The decline of pottery in Caticugan and environs is due largely to improvement of transportation facilities in southern Negros. The superior clay wares of Dumaguete became easier to buy in Siaton poblacion. Better transportation facilities increased both the number and frequency of visits to the city. The pots became so cheap that the barriofolk preferred to buy rather than make them. One old woman of Caticugan explained: "I stopped making pots because it is hard work. I would get sick always having my hands in the cold clay, squeezing it. And they are very cheap to buy." 323 369 438 178 489

As older women ceased their pottery activities, their daughters were not taught the technique. With a 323 [868] 178